LITHOGRAPHIC ABSTRACTS

Compiled by the Research Department of the

Lithographic Technical Foundation

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PHOTOGRAPHY, TONE AND COLOR CORRECTION

*DIRECT PROJECTION OPTICAL SYSTEM HAVING CONTROLLED EFFECTIVE DIAMETER OF LIGHT SOURCE. R.N.Kauffman. U.S.Patent 2,682,195. Official Gazette 683, No. 5, June 29, 1954, pp. 1054-5. 1. In a direct projection optical system having a high intensity carbon arc light source, a pair of plano-convex lenses adapted to condense the light received from the source and transmit it through a negative, and a process lens adapted to transmit the light passed through the negative to a light sensitive surface; the combination of a reflector placed behind the light source, a second pair of plano-convex lenses located between the light source and said first pair of lenses in light receiving relation to said reflector, a planar ground glass plate disposed in spaced relation to said second pair of lenses at the light output side thereof, and means adjustably mounting said second pair of lenses and said process lens for adjustable movement relative to each other.

COLORED LIGHT SOURCES FOR COLOR REPRODUCTION. H.M.Cartwright. Process Engravers Monthly 62, No. 734, February, 1955, pp. 43-4; Printing Abstracts 10, No. 4, April, 1955, page 209. Various types of colored fluorescent lamps are described. The author states that colored light sources have fairly satisfactory color qualities. They provide slightly more uniform and constant illumination than arc lamps. They may be more satisfactory for copying color transparencies. On the other hand their luminous intensity is much lower than that of suitable arc lamps, so that longer exposure times are required for reflection copy.

PROCESS LENSES. FACTS AND CARE. H.P.Paschel. Gravure 1, No. 6, June, 1955, pages 28 and 30. Because the needs of process photography are exacting, the choice and care of the process lens is very important. A number of factors affecting the choice of the focal length which a process lens should have are discussed. The problem of lens flare and how it may be reduced by lens coatings is discussed.

DU PONT RELEASES DATA ON "CRONAR" BASE COATED WITH PHOTOLITH EMULSION. American Pressman 65, No. 8, July, 1955, pages 10 and 18. A news item reports that DuPont's new film, which has a thickness of 4 mils, has better dimensional stability than previous film bases. It has a higher tear strength and will withstand folding better than regular film base material.

IMPROVE YOUR OFFSET CAMERA PROCEDURES TO INCREASE PRODUCTIVITY AND REDUCE COSTS. Erwin Jaffe. Inland Printer 135, No. 3, June, 1955, pp. 52-3. To improve productivity and reduce costs a process camera should be marked so that the operator can make enlargements or reductions easily and rapidly. The tape markings can be determined by trial and error or by the use of lens formulas. Various mechanical systems used for focusing and scaling of copy are described by the author.

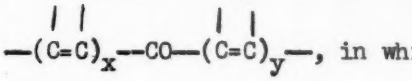
YOU SHOULD KNOW HOW TO MAKE SCREEN TINTS. S.R.Goldsmith. American Printer and Lithographer 136, No. 7, July, 1955, page 16. The author gives some useful hints on how to get good uniform tints. He also explains why a 60% tint on a film positive may print as a 50% tint on paper.

PLANOGRAPHIC PRINTING PROCESSES

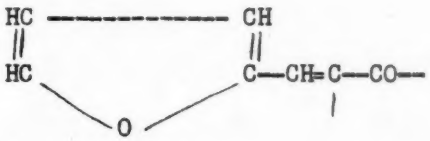
*SYNTHESIS OF LIGHT SENSITIVE SYNTHETIC SUBSTANCES. G.A.Schroter and P. Riegger. Kunststoffe 44, 1954, pp. 278-80; Chemical Abstracts 49, No. 12, June 25, 1955, Column 8017. New synthetic substances with high specific light sensitivity are described. They contain a high-mol.-weight org. carrier system, such as the polyvinyl alcohol chain to which light sensitivity is imparted by iso- or heterocyclic ring systems with at least 3 lineally linked hexagonal rings. One of these photochemically active substances is the 9-anthracenecarboxaldehyde acetal with the constitution $--RCH_2CH-(OAc)CH_2CH(OAc)--_n$ where R = 2-(9-anthryl)-m-dioxan-4,6-ylene. The applicability of the new substances in photographic reproduction techniques is discussed. 16 references. Kunststoffe is published by Carl Hanser Zeitschriftenverlag G.m.b.H., Leonhard-Eck-Str. 7, Munich 27, Germany.

*PHOTOCOMPOSING MACHINE. U.S.Patent 2,713,294. Jay D. Padgett. Official Gazette 696, No. 3, July 19, 1955, page 314. 1. In a photocomposing machine, a cabinet, a rectangular printing frame mounted in said cabinet for rotation about an axis through its longitudinal midsection, said printing frame consisting of a magnet bed frame and a cover frame hinged to said magnet bed frame along its rear edge and having a transparent air tight top, a magnet bed in said magnet bed frame, a non-porous blanket overlying said magnet bed on which is adapted to be disposed a sensitized printing plate, a ferrous negative holder and scale members having registerable scale lines for orienting a negative in said holder in relation to said printing plate and maintaining the position of said negative and printing plate through magnetic attraction of said holder and scale members to said magnet bed, magnets in said magnet bed frame movable towards and from said cover frame by influence of said ferrous negative holder and scale members, and means for exhausting air from between said cover frame and magnet bed frame.

*PRESENSITIZED LITHOGRAPHIC PLATES. German Patent 884,152. W.Neugebauer, M. Tomanek and T. Scherer. Monthly Abstract Bulletin 40, No. 11, November, 1954, page 492. Lithographic plates are sensitized with one or a mixture of ketones containing one of these light-sensitive groupings:



, in which x and y are 0, 1, 2, or 3, and x+y is at least 2; or



For example, a 2.5% cinnamalmethylethyl ketone solution in ethanol is coated on an oxidized aluminum sheet, dried, exposed through a line or halftone negative, swabbed with 5% acetic acid, and inked to give a positive offset printing plate.

PAPER AND INK

DRIERS AND DRIER REACTIONS ARE IMPORTANT; UNCERTAINTY IS SOURCE OF WORRY IN OFFSET. Inland Printer 135, No. 4, July, 1955, pp. 78-79 (2 pages). This article briefly lists the factors important to ink drying and describes the action of three main driers, i.e., cobalt, manganese and lead.

FOUNTAIN DOPE. J.D.Payne. New England Printer and Lithographer 18, No. 6, July, 1955, pp. 20 and 22. This article discusses briefly what work is being done to study ink transfer to paper. The work of Borchers at LTF is described and some opinions as to what happens during ink transfer are disclosed.

LITHO INK DRYING PROBLEMS. C.W.Latham. Share Your Knowledge Review 36, No. 9, June, 1955, pp. 24-27 (4 pages). This article covers some of the material found in LTF's Research Bulletin No. 213 on the drying of litho ink. Some of the ideas covered are drying troubles in the pressroom, chalking or powdering, smudging, offsetting, sticking of sheets, etc.

PRINTING COATED OFFSET PAPER. R.F.Reed. American Pressman 65, No. 5, April, 1955, pp. 41-44 (4 pages); No. 6, May, 1955, pp. 38-39 (2 pages); Bulletin of the Institute of Paper Chemistry 25, No. 11, July, 1955, p. 900. Various problems which might occur in the printing of coated papers and ways of preventing or correcting them are discussed, including offsetting, chalking, nondrying of ink, loss of color (burning out), scuffing, dull finish of ink, dusting of paper, picking, splitting, blistering, formation of hickies and spots, scumming, tinting, imperfect solids, slurring, static electricity, and curling. 14 illustrations. American Pressman 65, No. 7, June, 1955, pp. 33-35 (3 pages); Bulletin of the Institute of Paper Chemistry 25, No. 11, July, 1955, p. 900. Practical tests for coated paper are described, including basis weight, bulk, moisture balance, pick strength, pH, moisture resistance, tinting tendency, ink absorbency, and ink drying. 11 illustrations.

POROSITY AND DRYING BY OXIDATION. Daniel Tollenaar. I.G.T.Nieuws 8, No. 1, January, 1955, pp. 7-10 (4 pages)(in Dutch); Printing Abstracts 10, No. 5, May, 1955, p. 251. The question of the ability of the oxygen to reach sheets of printed paper in piles through the pores in the paper and externally to enable the ink to dry is fully discussed.

THE PRINTING GAUGE. H.J.Connell. Pulp and Paper Magazine of Canada 56, No. 2, February, 1955, p. 60 (abstract only); Printing Abstracts 10, No. 5, May, 1955, p. 255. The construction of and the procedure for operating a device known as the printing gauge are discussed. The gauge is used to print an ink film of varying thickness on the paper to be tested. Use is made of the fact that thin films set more rapidly than thick films and that the picking stress on a printed sheet varies inversely with ink film thickness. It is demonstrated that accurate measurements of printing characteristics such as paper picking resistance are possible with this instrument. The importance of and the variables affecting these printing characteristics are covered in detail.

*A NEW TESTER FOR THE DIMENSIONAL STABILITY OF PAPER CONSTRUCTED BY THE GRAFISKA FORSKININGSLABORATORIET IN STOCKHOLM. Wochbl. Papierfabrik. 82, No. 19, October 15, 1954, p. 777 (in German); Bulletin of the Institute of Paper Chemistry 25, No. 5, January, 1955, p. 387. The instrument is a modification and improvement of the Fenchel tester and permits an accuracy of measurement of 0.005%. Eight sample strips can be tested simultaneously. The instrument is built by Karl Frank, G.m.b.H., Weinheim-Birkenau, Germany. Wochenblatt für Papierfabrikation is published by Güntter-Staib Verlag, Biberach an der Riss (Württemberg), Germany.

*SUTHERLAND DEVELOPS NEW CURL TESTER. Paper Trade Journal 139, No. 19, May 9, 1955, page 58; Bulletin of the Institute of Paper Chemistry 25, No. 10, June, 1955, page 812. A brief description of an instrument for measuring the amount of curl in paper or paperboard and its use is given. 3 figures. Paper Trade Journal is published by Lockwood Trade Journal Co., Inc., 15 W. 47th Street, New York 36, N. Y.

NEW DRYING METHOD IS DEVELOPED. Odd Hultgreen. Paper Film and Foil Converter 29, No. 9, September, 1955, pages 34, 36 and 45-46 (4 pages). A new patented drying system suitable for inks and coatings is described. The equipment uses infra-red heating with regulated wave frequency to get maximum heating and a set of air blower nozzles to drive off evaporated solvents. It is known as the Liica infra-red drying system.

LITHOGRAPHY - GENERAL

OFFSET BLANKETS--DATA ON CONSTRUCTION, COMPOUNDING, CARE AND SELECTION. B.P.Nilles. Printing Equipment Engineer 85, No. 9, June, 1955, pp. 71 and 115 (2 pages). This article reports on offset blankets under the paragraph headings of (1) Construction of blankets, (2) Compounding of blankets, (3) Care of blankets and (4) Selection of blanket.

*PLATE DAMPENING DEVICE AND A PRINTING PRESS CONTAINING THE SAME. British Patent 726,100. Harris-Seybold Company. Printing Abstracts 10, No. 5, May, 1955, page 268. The device comprises an elongated electrode parallel to but spaced from the cylinder, an electrically conducting shell enclosing the electrode and open toward the cylinder, means for creating a fog containing finely-divided moisture particles and directing the fog into the space between the inner surface of the shell and the cylinder and means for connecting the electrode to a high potential source of electricity and for connecting the cylinder and shell to the ground, so that moisture particles coming within the field of force of the electrode are deposited upon the plate or upon the shell.

PHOTOLITHO NOTES. J.S.Mertle. National Lithographer 62, No. 6, June, 1955, pp. 46-47 (2 pages). A number of new products and processes are described: Kleerkote, a transparent plastic sheet for art overlays; Ticomat, a German-made printing lamp; "DH" a dehydrated gelatino-silver emulsion for general photographic use made by DuPont; a temperature-controlled apparatus for processing color separation negatives and masks made by Kodak, Ltd., England. A machine to compose Chinese characters and a means of making "printed electrical circuits" by a photographic and chemical etching technique is described.

CAUSES AND REMEDIES OF CREASING. Der Polygraph 8, No. 6, March 20, 1955, pp. 174-5 (in German); Printing Abstracts 10, No. 5, May, 1955, page 258. Creases and wrinkles may be caused by too much, too little or uneven cylinder packing; too heavy a makeready; faulty setting of grippers, lay guides, tapes and brushes; too much impression; too stiff an ink; or the condition of the paper.

TRYING OUT A NEW ROLLER. K. Schulte. Der Polygraph 8, No. 12, June 20, 1955, pp. 449-50 (in German); Druckspiegel 10, No. 2, February, 1955, p. 118 (in German); Printing Abstracts 10, No. 5, May, 1955, p. 264. Artex rollers are made of a non-porous, transparent plastic. They are not affected by atmospheric conditions, give good ink distribution and are easy to clean. (Felix Böttcher.)

HOW TO GET ACCURATE PRINT LENGTH WITH TRUE ROLLING. A.T.Kuehn. Modern Lithography 23, No. 7, July, 1955, pp. 41-42, 115 and 117 (4 pages). An article on how to get the correct print length on the printed sheet, and true rolling and its advantages.

GRAPHIC ARTS - GENERAL

*METAL PRINTING PLATE. U.S.Patent 2,704,512. W.F.Alexander. Chemical Abstracts 49, No. 12, June 25, 1955, Column 8022. A magnesium-base plate 0.062-0.065 inch thick is coated with a zinc skin 0.003-0.0003 inch thick, and the smooth surface is covered with a sensitized layer. After exposure it is immersed in the usual alcohol-dye solution, washed, dried, and then acid-etched. The zinc skin can be applied by electrodeposition or built up by flame-spraying, but the latter method must be followed by polishing. This zinc skin has less porosity than the conventional zinc plates, and because deep etching can be effected, the number of steps in the multiple-step etching process can be reduced. Zinc being more resistant to the etching liquid than magnesium or magnesium alloy, the images on the surface are less subject to attack than the body and do not tend to recede to deform the image outline at an excessive rate during the etching process. Material containing 51% magnesium can be used, but magnesium plate of about 80-90% by weight is preferred. The body plate is rolled or otherwise formed and then smoothed and cleaned to receive the skin coat so the finished thickness is about 0.064 inch.

*PHOTOGRAPHIC COPYING PROCESS. A.E.Jackson. U.S.Patent 2,704,712. Chemical Abstracts 49, No. 12, June 25, 1955, Column 8020. Photographic copying is accomplished by developing and hardening an exposed emulsion, re-exposing, re-developing with nonhardening developer, and physically transferring the resulting complementary image to a second support. For example, an exposed silver halide paper was developed with a pyrocatechol developer containing 10 ml. of solution made from 50 grams pyrocatechol, 5 grams KBr, 5 grams K metabisulfite, and 440 ml. water, and 230 ml. of a second solution made from 200 grams K_2CO_3 and 300 ml. water. The paper was then washed and developed for about 20 seconds in bright light in an ordinary Metol-hydroquinone non-hardening developer. After a second wash, the negative was wiped free of surplus water, pressed into contact with a sheet of plain paper, and the nonhardened image was peeled onto the plain paper to give a positive print.

VINYL PRINTING. Gabriel Goldstein. American Ink Maker 33, No. 7, July, 1955, pp. 27-29, 65 and 67 (5 pages). Printing on vinyl is covered in this article. The types of vinyl, methods of printing and requirements of pigments are discussed.

Nov. 1955 (2)

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PHOTOGRAPHY, TONE AND COLOR CORRECTION

GETTING THE MOST FROM YOUR CAMERA. Bernard R. Halpern. Modern Lithography 23, No. 7, July, 1955, page 48 (1 page). The author discusses a number of points which influence the quality of work produced and the efficiency of the camera and its operator. He also gives a few pointers on how to choose a camera. The quality of the lens, the accuracy and rigidity of construction will determine the quality of the negatives produced. The use of a calibrated focusing system, timers, lens controls, and uniform illumination help to increase efficiency. The author suggests some test equipment to be used in a periodic test of the camera's accuracy.

*PHOTOMECHANICAL REPRODUCTION. Donald C. Gresham. U. S. Patent 2,715,578. Official Gazette 697, No. 3, August 16, 1955, page 375. 1. Process for the production of screen positives for use in the production of screen negatives for the halftone block and bi-metal litho processes which comprises exposing a photographic element having an emulsion of high contrast behind a halftone screen to light from an original subject, developing the screen latent image obtained to a gamma of at least approximately 2.5 in a developer giving only a silver image, reversal exposing the element to light incident on the same side thereof as the original exposure, redeveloping the element in an aromatic primary amino developing agent in the presence of a color former which couples with the oxidation products of such developer formed during development to form a dye image in situ with the developed positive silver image, said development being such as to yield a dye image with a gamma value of at least approximately 2.5, and removing

silver and silver salts from the product.

HOW TO MAKE SCREEN TINTS (Part 2). Stanley R. Goldsmith. American Printer and Lithographer 136, No. 8, August, 1955, Page 32 (1 page). The author continues his discussion of the requirements needed to make good screen tints. The lens illumination and developing techniques are reviewed. An analysis of some of the common faults in screen tints is given.

PROCESS LENSES, FACTS AND CARE (Part 2). Herbert P. Paschel. Gravure 1, No. 7, July, 1955, pp. 31-32 (2 pages). Process lenses will last indefinitely if handled with care. Avoid subjecting lenses to chemical fumes, or a dusty atmosphere. Avoid extremes in temperature. Cleaning should be kept to a minimum but when necessary extreme care should be exercised. Don't use ammonia as a cleaner and don't apply pressure when polishing the lens with tissues.

PROCESS PRACTICE: THE HUNTER-PENROSE COLOUR SCANNER. Process Engravers Monthly 62, No. 741, September, 1955, pp. 311, 313 (2 pages). The operation of the Hunter-Penrose Colour Scanner is described. The model exhibited at I.P.E.X. was a development model. It is similar in construction to a camera. The copy is viewed through a lens and focused at the camera back. The copy to lens area is covered by a bellows so that only a fine beam of light illuminates the copy. The light beam scans the copy. The reflected light is recorded on a plate at the camera back. Using a panchromatic plate and an appropriate filter will result in a colour separation negative. A set of 3 photo-electric cells examines the coloured reflected light, and an electronic computor adjusts the intensity of the light beam according to colour of the beam and to the correction information fed into the machine before the scanning started. The amount of correction needed is determined by adjusting the machine so it scans patches of

the printing inks to be used. The result is a colour corrected negative. Transparencies can also be used as copy.

*ELECTRO AMPLIFICATION OF LIGHT. Koller. U.S. Patent 2,709,765. Photographic Engineering 6, No. 2, 1955, Page 143 (1 page). This patent describes an electroluminescent emitter having a brightness at the emitting surface of about 8 foot lamberts at an impressed potential of 100 volts. The emitter is made of a thin layer (.1 micron) of titanium dioxide deposited chemically on a glass plate, a somewhat thicker layer (1 micron) of zinc or cadmium sulfide or mixed sulfides deposited chemically over the titanium dioxide layer, an activator such as manganese, copper or silver in the phosphor and a layer of non-conducting silicon monoxide deposited to overlie the zinc sulfide phosphor layer. The silicon monoxide layer has a thickness of about 0.1 micron, and is oxidized to silicon dioxide after which a conductive metal coating, aluminum, gold copper or silver is vapor deposited over the silicon dioxide layer. Alternating voltage applied to the titanium layer and the conductive layer (both transparent) causes an exponential increase in brightness of the zinc sulfide phosphor light emitting layer. In view of the 1954 Review in this Journal, "Technicalia", 1955, Vol. 6, No. 1, Page 63, it appears that the use of a weak light source as a photoelectric input for the alternating potential control will provide an electroluminescent amplification at the output from the phosphor.

*PHOTOGRAPHIC TRANSFER PROCESS AT ELEVATED TEMPERATURE FOR RAPID COPYING. A. E. Jackson. U. S. Patent 2,704,712. Photographic Engineering 6, No. 2, 1955, Page 147 (1 page). The invention consists in a photographic copying process, in which a line or half-tone image comprising unhardened gelatine, forming part of a silver halide-

type photographic emulsion coated on a first support, is transferred by contact to a second support, after the gelatine comprised by the complimentary image has been rendered non-transferring by hardening, after or during exposure to light, in a tanning developer.

PLANOGRAPHIC PRINTING PROCESSES

*PLANOGRAPHIC PRINTING PLATE. U. S. Patent 2,714,066. Clifford L. Jewett and John M. Case. Official Gazette 696, No. 4, July 26, 1955, Page 522 (1 page). 1. A presensitized, dimensionally stable plate suitable for lithographic printing and related uses, and capable of being shipped in light-proof packages, stored and then used weeks or months after manufacture, comprising an aluminum sheet having on at least one surface thereof a permanently hydrophilic scum-preventing and tone-reducing film formed by reacting an aqueous solution of a soluble silicate with the surface of said aluminum sheet, said film overlying and being firmly bonded to said surface of said sheet and being substantially free of water-soluble material, said film being further characterized in that it will cause an in situ insolubilized diazo image strongly to adhere to the surface of the sheet, and over and in contact with said film a thin coating of a light-sensitive diazo resin, said light-sensitive material being characterized in that, upon exposure of the plate to ultra-violet light through a stencil or negative, it will react in the exposed portions, expelling nitrogen from the molecule and forming a water-insoluble hydrophobic and organophilic material which is tightly bonded to said permanently hydrofilm, providing a printing image, the light-sensitive resin material being readily washed away from the unexposed areas, leaving the permanently hydrophilic film bare in said areas, said hydrophilic film being further characterized in that it will prevent the metal from causing decomposition of the diazo light-

sensitive material, thus providing long shelf life for the presensitized plate.

*PLANOGRAPHIC PRINTING. U. S. Patent 2,713,822. Douglas A. Newman. Official Gazette 696, No. 4, July 26, 1955, Page 460 (1 page). 8. The method of forming a facsimile planographic image on a planographic plate through the medium of a superposed transfer sheet having a substantial electrical resistance and provided on one surface with a layer of image-forming fusible oleophilic material which includes the steps of scanning over the transfer sheet with a stylus-directed, image-delineating current in accordance with an original, generating heat in localized areas scanned by said stylus by the passage of current through the transfer sheet and fusing image-forming portions of the layer of fusible transfer material on the transfer sheet and simultaneously adhering said fused imaged portions to the underlying planographic printing surface of the planographic printing plate to produce a printing image thereon.

*CINNAMATE SENSITIZED ZINC LITHOGRAPHIC PRINTING PLATES. U. S. Patent 2,697,039. Martinson. Photographic Engineering 6, No. 2, 1955, Page 146 (1 page). Minsk et al. U. S. 2,610,120, and Nos. 2,670,285; 2,670,286 and 2,670,287, describe methods for the preparation of light-sensitive cinnamic acid esters of polyvinyl alcohol and the sensitizing of compositions containing such esters with various compounds such as nitro-aryl quinones, anthrones, and triphenylmethane compounds and diamino diphenyl carbinol, diamino diphenyl methane and diamino diphenyl ketone compounds. Such light-sensitive esters are disclosed as useful in the preparation of resist images on zinc plates for printing purposes. The light-sensitive compositions are coated from a solvent onto a metal surface and are exposed under the desired subjects such as a line or halftone subject followed by removal from the

plate of the unexposed regions with solvent to yield a light-hardened resist image on the metal surface. When the compositions are coated on zinc plates, initially, within a period of about 25 hours, satisfactory resist images can be formed on the zinc plates by the above method but after about 24 hours it is found that even in the dark, the zinc plates apparently have sufficiently changed the solubility of the resin immediately adjacent to the surface of the zinc plate that the quality of the printing plate is decreased. That is, the printing ink adheres to the unexposed areas of the plate ostensibly free of polymeric resist. The effect is noted by the formation of a very thin stratum of sparingly soluble reaction product on the surface of the plate, which is not readily removed by the solvent developer in the unexposed areas which repel the printing ink, but which tend to attract the ink. This condition is called "scumming." Smith et al. U. S. Patent application Serial No. 266,236, filed January 12, 1952 adds an inhibitor such as hydroquinone into the polymeric cinnamic acid ester coatings to prevent scumming. A further improvement has been discovered by incorporating about 0.05 to 0.15 gram of triethanolamine in 100 cc. of a 3.75 percent solvent solution of the cinnamic acid esters before coating on the zinc surface. By treating the zinc plate upon which the insoluble cinnamic acid ester resist has been formed, with an aqueous solution of alkali metal permanganate, the polyvinyl cinnamate resist becomes water-receptive. This result allows the preparation of a cinnamic acid ester resist image on ink-receptive surfaces such as copper in the usual manner and treatment of the plate with the permanganate solution produces a positive-positive plate in which the metal areas carry the ink and the cinnamic acid ester resist areas repel the printing ink in the presence

of moisture. After the formation of the insoluble cinnamic acid ester resist image on a zinc surface, the plate is swabbed with either ethylene glycol monomethyl ether or thylene glycol monoethyl ether. It appears that these compounds are capable of removing from the surface of the zinc a thin film of reacted polymer which is responsible for the scumming tendencies of the plate. These two compounds are not solvents for the original light-sensitive cinnamic acid ester itself and scumming is not prevented if these two compounds are used initially for the development of the resist image on the zinc surface. It appears essential that the exposed light-sensitive layer be first developed with a solvent in which the unexposed polymer is highly soluble, such as toluene, methyl ethyl ketone, ethylene dichloride and trichloroethylene.

PAPER AND INK

TACK, A DYNAMIC ASPECT OF ADHESION. A. C. Zettlemoyer and J. C. Miller. Paint, Plastics & Printing Ink Chemistry 15, No. 1, April, 1955, pp. 69-82 (14 pages). Rheological aspects of adhesion, fundamental concepts of tack and the role of adhesion in resisting rapid splitting, possible mechanisms of film splitting, solid rupture, the trapping of printing inks and printing inks as model systems are discussed.

WHAT THE PRINTER WOULD LIKE TO HAVE FROM THE PAPERMAKER. Philip E. Tobias. TAPPI 38, No. 6, June, 1955, 134A-135A (2 pages). This article is a reprint of a talk given before Delaware Valley Section of TAPPI, 1/27/55. The most important things that a printer wants in offset paper are listed and reasons for importance given. These include moisture content, dirt (slitter dust, foreign material, loose sizing, picking). The economic and production viewpoint is emphasized.

PAPER FOR OFFSET. 5. WET-STRENGTH PAPERS FOR THE LITHOGRAPHER. J. C. Barthel. Modern Lithography 23, No. 8, August, 1955, 49-50 & 113 (3 pages). This article describes the uses of Cyanamid's "Melostrength" a melamine-formaldehyde resin in wet-strength paper. Resin containing papers also have increased pick and curl resistance. Lint on blankets is cut down and wash-ups are less frequent. Also folding endurance is raised greatly.

*TENTATIVE PROCEDURE FOR TESTING THE DRY RUB RESISTANCE OF A PRINTED INK FILM ON PACKAGING MATERIALS. Packaging Institute, Inc. Test Proc. PI Printing 4t-54, New York, 3; Printing Abstracts 10, No. 6, June, 1955, Page 328 (1 page). This recommended test procedure is based on the studies of a Joint Task Committee on the Rub Test, in which the participants were representatives of the Folding Paper Box Association of America, the National Association of Printing Ink Makers, and the Packaging Institute. The use of the Sutherland Rub Tester is specified. Details are given of the procedure.

PAPER ABSORBENCY AND PRINTABILITY. R. R. Coupe and A. H. Smith. Penrose Annu., 49, 1955, pp. 111-3 (3 pages); Printing Abstracts 10, No. 6, June, 1955, Page 332 (1 page). Two techniques for investigating absorption are outlined and discussed: (1) a staining technique for assessing the amount of filtration which occurs with paper/ink systems; (2) an instrument for measuring ink or varnish penetration during the first few seconds after application using an oscilloscope screen in conjunction with a reflectance instrument.

PAPER — AS CONCERNS PRINTABILITY AND INK. P. H. Hershey. TAPPI 38, No. 6, June, 1955, pp. 135A-138A. (4 pages) / This article presents a summary of a number of subjects, such as (1) printing quality evaluated in terms of halftone reproduction (2) a comparison of the three systems of

printing in producing halftones (3) the influence of paper properties on dot reproduction (4) ink transfer (5) print-through, and (6) picking.

DOES THE FELT OR WIRE SIDE OF PAPER PRINT BETTER? Robert Cornely. Der Polygraph 8, No. 18, September 20, 1955, Page 700 (1 page). (In German). This article lists the differences between felt and wire sides of paper and why they exist. The influence of coating in minimizing two-sidedness is mentioned. In apparent contradiction to the findings of others the article states picking happens much more frequently on the wire side.

*PICKING: ITS CAUSES AND THEIR PREVENTION. Jack Deller. British Printer 68, No. 403, July-Aug., 1955, 98-9, (2 pages); Bulletin of the Institute of Paper Chemistry 25, No. 12, August, 1955, Page 965 (1 page). Picking occurs when the ink is too stiff or tacky for the paper being used; it is mainly experienced when printing on coated papers or boards. A list of factors which may be the cause of picking is given and the reasons discussed, including the use of newly made or green paper, effect of temperature, ink additives, impression faults, and press speeds.

LITHOGRAPHY - GENERAL

*SPRAY DAMPENING SYSTEM FOR LITHOGRAPHIC OFFSET PRINTING PRESSES. U. S. Patent 2,716,380. James K. Martin. Official Gazette 697, No. 5, August 30, 1955, Page 596 (1 page). A spray dampening system for lithographic offset presses comprising: an elongated chamber arrangeable in proximity to a printing cylinder adapted to carry a printing plate or medium to be dampened and having a lengthwise outlet slot therein opening toward said cylinder; means for providing in said chamber an electrically-charged dampening spray medium under pressure; a series of substantially parallel metal plates fixedly supported by the chamber and

so disposed in relation to said slot that the spray medium must pass between them in moving from said chamber toward said cylinder; means for placing an electrical charge on said plates to cause precipitation of a controlled quantity of the charged particles of said dampening spray medium; means for placing an electrical charge on said spray medium; and means for varying the strength of the electrical charge of a given polarity on said plates with respect to the charge on said spray medium.

A MECHANICAL METHOD OF REGISTERING FOR LITHOGRAPHIC REPRODUCTION. Eastman Kodak Co. Modern Lithography 23, No. 7, July, 1955, Page 45 (1 page). A mechanical registering system can be used successfully where visual methods are now used. In the short run three color process a system of register pins and punched negatives and printing plates enables the operator to run through a number of jobs without an adjustment for register. Mechanical register systems can be used for job layouts where the blue key method is now used.

WHAT'S WHICH WITH SHORT-RUN 3 COLOR - PRESENT STATUS AND TECHNIQUES. Kodak Bulletin for the Graphic Arts 2, No. 4, 1955, pp. 2-5 (4 pages) There exists a market for a short run 3 color process, which can produce pleasing color at a price much below that of the conventional 4 color process. The use of a pin register system, photographic masking, controlled exposure and development techniques for negative and plate making reduces the amount of time and materials wasted. The use of special inks reduces the amount of color correction needed so that 1 silver mask is sufficient to give pleasing results. Although the original system was intended for reproductions from 35mm Kodachrome transparencies, some equipment manufacturers are supplying systems which can handle different size transparencies and produce reproductions of

variable sizes.

RUBBER COVERED ROLLERS. B. W. Hubbard. Modern Lithography 23, No. 3, March, 1955, pp. 73, 75, 142-3, 145 (5 pages); Printing Abstracts 10, No. 6, June, 1955, Page 338 (1 page). The qualities needed in rollers for metal decorating presses and the development and properties of vulcanized oil, synthetic rubber, glue-glycerine and plastic rollers for use with oil and resin-based inks are discussed. Some testing methods used by the Ideal Roller & Mfg. Co. are outlined. No all-purpose roller has yet been developed.

GRAPHIC ARTS - GENERAL

USING RADIANT HEAT TO DRY INK. Charles C. Doyle. Printing Equipment Engineer 85, No. 10, July, 1955, 44-45 (2 pages). This article begins by telling simply the differences between conduction, connection, and radiation. The principle of applying heat by infra-red or "open glow" type equipment is described. The greatest advantage is in large day in - day out production runs where power requirements are found through experience and heat impact is at maximum possible.

RADIANT HEAT AND AIR DISCHARGE DRIER. Charles Carswell. Printing Equipment Engineer 85, No. 12, September, 1955, Page 42 (1 page). A drier is described for high-speed web printing and coating applications. Flexibility of control is claimed since several factors are each subject to control. Radiant heat from one or more Corning Pyrex radiant glass heating panels with maximum surface temperatures of 660 degrees provides for a high rate of heat application. In addition, heated air can be pumped in and pumped out of the enclosure at controlled rates to accelerate the removal of solvents. Safety and high speed operation are claimed, even for materials which can easily be damaged by overheating. The installation is simply and economically

made, since the heat generating unit is assembled as a "package."

TECHNIQUES FOR CONTROLLING LABORATORY PRINTING CONDITIONS. Jacqueline M. Fetsko, William C. Walker and Albert C. Zettlemoyer. American Ink Maker 33, No. 10, October, 1955, pp. 34, 35, 37, 38, 40, 63, 65 (7 pages). Laboratory study of the printing process requires careful control and measurement of such vital variables as printing pressure, speed, and ink film thickness. The techniques for handling these variables are reviewed, and a practical combination for controlled work on a proof press is selected. Static printing pressure is measured with a flexing bridge such as the Huck pressure sensitive base. Correlation of the static pressure with dynamic pressure has been made using strain gages and the Brush strain analyzer. Speed is handled by measuring the time of passage of the cylinder over the plate with an electric stopclock. The method selected for film thickness measurement is direct weighing of the ink on the plate after establishment that resting of the particular ink does not affect results. Use of these techniques in a constant temperature and humidity room has produced highly reproducible results.

MOISTURE RESTORED IN PRINTED WEB AUTOMATICALLY BY STEAM CONDITIONER. Dr. Worth Wade. Printing Equipment Engineer 85, No. 11, August, 1955, Page 54 (1 page). This article describes a steam conditioner used to replace moisture to printed Cellophane after heat had been used to set the inks. The conditioner can be used on rotogravure and flexographic presses. Conditioner can be modified to restore moisture to paper and glassine. Operating temperature: 190° F. Steam pressure: 3 to 5 lbs. per sq. in. Web speeds: 50 to 550 ft. per min.

*PHOTOGRAPHIC TYPE COMPOSITION. U. S. Patent 2,714,842. Frederick J. Hooven. Official Gazette 697, No. 2, August 9, 1955, pp. 176-7 (2

pages). 1. A photocomposing machine adapted to compose a line of composition on a record film including a character carrier having a plurality of characters thereon of different widths, a flash source of light, continuously rotating means for effecting continuous relative movement between said carrier and said light source, means for continuously advancing said film in direct relation with the rotation of said means and in increments which are small in relation to the individual character widths, means for selecting a series of characters, means controlled in accordance with the character selected for controlling said instant of the flashing of said light within a single revolution of said character carrier to effect the flashing of the selected character upon said film, means for sensing the width of the selected characters, and means controlled in accordance with said width sensing means for causing said rotating means to rotate a predetermined whole number of revolutions to advance said film proportionately in accordance with the width of the selected character to effect the proper number of increments of film advance to accomplish the spacing of the character in the line.

*PHOTOGRAPHIC TYPE COMPOSITION. U. S. Patent 2,714,843. Frederick J. Hooven. Official Gazette 697, No. 2, August 9, 1955, Page 177 (1 page). 1. In a photocomposing machine the combination of means for selecting characters and word spaces to form a line of composition, a continuously rotatable character carrier having characters of different width located in different angular positions thereon, coded data on said carrier associated with each of said characters indicative of the width thereof, a register continuously rotatable in coordinated relation with said character carrier and having a series of zones in angularly spaced positions thereon, said zones having a

plurality of recording tracks, means controlled by said character and word space selecting means for selecting a sequence of zones on said register corresponding to the positions of selected characters in said line of composition, means for recording in said zones on certain tracks thereof coded data identifying the selected characters, and means for recording on another track of the same zones of said register a corresponding sequence of coded data indicative of the width of said selected characters.

NEW RCA TUBE SIMULATES TYPESETTING. American Printer and Lithographer 136, No. 7, July, 1955, pp. 46-47 (2 pages). A new electron-image tube that can translate coded signals from tape, keyboard or radio into clearly defined letters and figures at speeds up to 100,000 words per minute for high-speed photographic recording was announced recently by Radio Corporation of America. The new tube fills an acute need for high-speed printing devices operating directly from data in coded form. When it achieves commercial form, its initial application is likely in electronic message transmission and computing systems. Further development is expected to fit it for wider application in general printing as an electronic means of typesetting. In operation, the tube simulates typesetting in selecting letters and figures one by one from a "font" and placing them in luminous form on the 5-inch circular tube face either in line or in any pattern desired. The ability to place the characters where they are wanted gives the tube wide flexibility for such tasks as producing financial statements, balance sheets and bills, where letters and figures must be placed in various positions on a form.

"3" BRAND MAKEREADY IS A REAL TIME SAVER. American Printer and Lithographer 136, No. 8, August, 1955, Page 46 (1 page). A new

product which gives a new approach to letterpress makeready has been announced by Minnesota Mining and Manufacturing Co. It is called "3M Makeready" and reportedly provides letter for letter and dot for dot pressure correction automatically and at a time saving. In practice, the first printed proof is made on the Makeready Paper. Processing in dry-process machine causes plastic coating to rise in relation to ink density. Heavier ink density means greater rise. The Makeready sheet is then buried 12 mils down in the pressure cylinder packing and pressrun is ready to start.

LITHOGRAPHIC ABSTRACTS

Compiled by the Research Department of the

Lithographic Technical Foundation

December, 1955

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PHOTOGRAPHY, TONE AND COLOR CORRECTION

*PHOTOTHERMOGRAPHIC EMULSIONS. Lawrence Suchow and Seymour L. Hersh. U. S. Patent 2,700,610. Chemical Abstracts 49, No. 13, July 10, 1955, Column 8718. A copptd. Ag and Hg oxalate exhibits high photothermal sensitivity. The sensitive $Hg_2C_2O_4$ releases Hg nuclei by photolysis which catalyze the decompn. of $Ag_2C_2O_4$. Thus, 10 ml. of 0.3N $AgNO_3$ is added to 10 ml. of 0.3N $HgNO_3$ contg. 7% concd. HNO_3. The resulting soln. is added to 20 ml. of 0.36 N $K_2C_2O_4$. The ppt. obtained is filtered and washed with distd. H_2O. Then 3 g of Kodak No. 1099 ash-free gelatin is dissolved in 20 ml. of distd. H_2O at 40°, the ppt. and 4.2 ml. of 0.36 N $K_2C_2O_4$ are added, and H_2O is added until the total vol. is 60 ml. The mixt. is then stirred for 1 hr. at 40°, and 0.8 ml. on a glass slide is dried at 80°. The plates are exposed to an ultraviolet source and developed for 1 min. at 120°.

*VARIABLE ELECTROOPTICAL COLOR CORRECTION. John A. C. Yule. U. S. Patent 2,721,892. Official Gazette 699, No. 4, October 25, 1955, p. 691. 1. In an electrooptical color reproduction process having an electrical signal corresponding to a scanned primary green component of a multicolored original and a masking signal corresponding to a scanned, predominantly red, component of said original, the method of color correcting said green signal by said masking signal which comprises producing a factor signal with a value between K_1 and K_2, which increases continuously with increasing green signal and decreases continuously with increasing masking signal where K_1 is the masking

factor which matches the green signal from YM red to that from YMC black and where K_2 is the masking factor which matches the green signal from YC green to that from white, modifying the masking signal by said factor signal exponentially and dividing said green signal by the exponentially modified masking signal.

*APPARATUS FOR MAKING COMPOSITE FIGURE COLOR SEPARATION NEGATIVES. Robert U. Guthrie. U. S. Patent 2,721,496. Official Gazette 699, No. 4, October 25, 1955, p. 597. 1. In apparatus for making composite figure color separation negatives, a turret, a plurality of separate negative carriers positioned at circumferentially spaced places on the turret, means for locking the turret in a plurality of indexed rotative positions to locate the negative carriers accurately, enclosure means for the turret to cover all but one of the negative carriers, resilient sealing means extending between the enclosure means and the turret adjacent the exposed negative carrier, and a pivotally positioned masking member for movement into association with the enclosure means to cover the said one negative carrier and complete the enclosure of the turret.

*LITHOGRAPHIC STEP-AND-REPEAT SYSTEM. Harry C. Kessler. U. S. Patent 2,711,031. Tin-Printer and Box Maker 31, No. 370, November, 1955, p. 17. In a step-and-repeat process there are employed a bed, dowels arranged along the head and foot of the bed, a carrier and means at the ends thereof engageable with the dowels. Dowels are arranged lengthwise of the carrier. A transparent backer is adapted to have a negative attached. The backer has one or more non-photographic lines extending transversely of the carrier when the backer is applied thereto. The backer has oppositely disposed holes which are removably engageable with the dowels on the carrier.

BRUSH DEVELOPMENT. John Pince. National Lithographer 62, No. 11, November, 1955, pp. 35-36 (2 pages). A development technique is described which will produce large halftone tints where the percentage of transmitted light will be plus or minus 1%. A 6" camel hair brush is used to lightly brush the plate during the entire developing time. Development by agitation is uneven. A wave motion is set up which produces a ripple effect on the exhausted layer of developer just above the plate. This effect can be reduced by developing with a minimum amount of developer in the tray.

PHOTOLITHO NOTES. J. S. Mertle. National Lithographer 62, No. 9, September, 1955, pp. 44-46 (3 pages). A new material called Druckfilm is described. The material is used to take ink impressions of type matter. The material is an acetate support bearing a thin layer of transparent rubber. The rubber surface is pressed against the type. A short description of the electron printing process is given. The process can be used to make same size reproductions of line drawings. The formula for a ruling varnish is given. When this material is applied on a glass plate and allowed to dry, sharp, clean lines can be scribed on it. The transparent lines can then be contacted to a press plate. Some of the advantages of a camera flashing lamp are given. Some comments on color terminology are given. Some tips on color separation negatives are given. Some comments on the high cost of newspaper printing by letterpress and the possibility of offset being used in the publication field.

PHOTOLITHO NOTES. J. S. Mertle. National Lithographer 62, No. 10, October, 1955, pp. 44-45 (2 pages). A letterguide Scriber has been introduced to produce mechanical lettering and to enlarge, reduce, or slant any of the letters on templates furnished with the device. A

pen is described which will dispense glue. A formula for an anti-fogging agent to be added to the developer when using old photopaper. Treating studio proof paper with benzotriazole before an exposure will slow down the general darkening of the photoproof. A Johns-Manville product called Colorlith seems promising as a material for table tops where chemicals are used. A combination of a collodion emulsion, still development and a diluted developer will give good line negatives from the most delicate originals and good shadow details in halftone images. A photolitho halftone printing surface can be made on some presensitized plates by placing a 60% tint over a continuous tone negative and then contacting to the plate.

PHOTOLITHO NOTES. J. S. Mertle. National Lithographer 62, No. 11, November, 1955, pp. 38-39 (2 pages). Ansco has introduced a reflex paper called Scona. The material is used for reflectographic reproduction of originals. Ansco and the Kemart Corp. have developed a fluorescent photopaper for improved halftone reproduction. It is a fluorescing paper support for photographic emulsions. It promotes brilliancy and automatically accentuates highlight effects. A method of producing positive images direct from line originals requiring a color developer and a bleaching step has been patented by Donald Gresham. A method for checking the screen distance of a given crossline screen is described. The shape of a flash dot will indicate whether the screen distance is too great or too short. An anodized aluminum printing plate called Arnem has been introduced by the British firm, Algraphy Ltd. The use of a plastic such as Cronar, which has good dimensional stability, is suggested for map reproductions. The drawings are made on the plastic and then printed to the press plate.

COLOR STRIPPING. Bernard R. Halpern. Modern Lithography 23, No. 10, October, 1955, pp. 46-49, 133, 135 (6 pages). This is a preprint of the first section of a new volume on color stripping, by Bernard Halpern, to be published by LTF. The first section is divided into two parts. To show the importance and relative position of stripping on a color job, the author follows a job through production from the time of copy preparation through the bindery. In part one the author gives a general description of the operations and materials used for copy preparation, layout, process photography and simple stripping. In part two color stripping, proofing, platemaking, press and bindery operations are treated.

TYPEWRITER COMPOSING FOR OFFSET HAS ADVANTAGES AND DISADVANTAGES. Leroy F. Dyer. Inland Printer 136, No. 1, October, 1955, pp. 56-58, 100-101 (5 pages). The advantages and disadvantages of typewriter composing for offset are examined. Some of the defects of a proof pulled on type for litho reproduction are given. Some of the characteristics of typed copy are given. The low initial operating and maintenance cost of a typewriter plus its simplicity, compactness and speed make it a desirable piece of equipment to use. At the present time typewriting is limited to simple straight matter in sizes 12-point or smaller. It is possible to have interchangeable type baskets to increase the number of characters that can be typed. The Justowriter, a set of 2 typewriters, can be used to obtain justification of a typed line. The use of an IBM electric typewriter with added features can produce typed copy with perforations which is then fed into a Justigraph, a machine which justifies the copy and photographs it.

PLANOGRAPHIC PRINTING PROCESSES

*SURFACE-PRINTING PLATES. German Patent 903,415. Wilhelm Neugebauer and Martha Tomanek. Chemical Abstracts 49, No. 13, July 10, 1955, Column 8720. A carrier material, such as an Al plate or foil, is coated with a soln. of an unsatd. sulfone (1) of the general formula $RSO_2(CH{:}CH)_2R'$, where R and R' indicate aromatic radicals which can be substituted, then exposed to light according to pattern, treated with dil. acid, and then inked with a fatty pigment.

*IMPROVEMENTS IN OR RELATING TO DIAZOTYPE PRINTING. British Patent 473,244. Hein Israel Waterman and Tjakko Willem Anton Borgesius. The Aromatic Diazo Compounds, K. H. Saunders, 2nd edition, Edward Arnold & Co., publishers, (London), 1949, p. 204 (1 page). Extension of British Patent 454,137 using diazotized casein as sensitive coating material. After light exposure, coating is developed with coupling component such as H-acid which reacts with those portions of coating which have not been exposed.

*METHOD FOR MANUFACTURING IMPROVED PLANOGRAPHIC PRINTING PLATES. U. S. Patent 2,721,815. William G. Mullen. Official Gazette 699, No. 4, October 25, 1955, p. 677. 1. In the process of fabricating a paper-base planographic printing plate with two or more superposed hydrophilic colloid coatings, the steps of drying an underlying hydrophilic colloid coating, wetting the surface of the dried coating with water, removing the excess of the aqueous wetting composition, and then applying the colloid coating composition for forming the next coating while the surface of the underlying coating is still wet.

*METHOD FOR THE UNIFORM COATING OF LARGE SURFACES. U. S. Patent 2,721,809. Alvin M. Marks and Mortimer M. Marks. Official Gazette 699, No. 4, October 25, 1955, p. 676. 1. The method of coating large vertically disposed areas with light filtering media which consists of the steps of preparing a supply of a viscous solution containing the filtering media, forming a film of said solution on a vertically extending portion of the area, directing a stream of said solution at an area contiguous with said vertical portion and adjacent the upper edge of the surface to be coated, thereafter traversing the upper portion only of the surface with said stream so as to apply, at a rate which will provide a downwardly flowing film having an unbroken leading edge, a quantity of solution thereto in excess of that needed to cover the surface, allowing the solution so applied to flow downwardly across the entire surface in a continuous sheet and thereafter allowing that portion of the fluid which adheres to the surface to dry thereon.

*PRINCIPLES APPLICABLE TO THE OXIDATION AND CORROSION OF METALS AND ALLOYS. W. W. Smeltzer. Corrosion 11, 366t-74t (1955); Chemical Abstracts 49, No. 20, October 25, 1955, Column 13865. Different models of oxide films have been described which are used to interpret the oxidation characteristics of metals and alloys. Metals are sepd. into groups forming "metal-excess" and "metal-deficit" oxide films and emphasis is placed on the role of lattice defects in governing diffusion of metals through the film to react with the environment. Effects of alloying elements on oxidation rates of metals are discussed in terms of formation of solns. of oxides and intramol. oxides. Special reference is made to Al and its alloys. 49 references.

*NICKEL PLATING BY CHEMICAL REDUCTION. U. S. Patent 2,721,814. Hillard J. Jendrzynski and Thomas F. Stapleton. Official Gazette 699, No. 4, October 25, 1955, p. 677. 1. A method of depositing nickel from a chemical reduction plating bath, said method comprising immersing a catalytic article to be coated in a solution of nickel ion and a hypophosphite reducing agent capable of reducing the nickel in solution, said solution having a nickel ion concentration of less than about 10 grams per liter, a hypophosphite ion concentration of less than about 25 grams per liter, a temperature within the range from about 165° F. to 190° F. and an initial pH within the range from about 5.8 to 7.2, and allowing said article to remain in said solution until the nickel is substantially completely reduced as evidenced by the solution turning from green to colorless.

PAPER AND INK

*DRYING OF PRINTING INKS: MECHANISM OF DRYING. R. Kirry. Assoc. tech. ind. papetiere, Bull. 1955, 71-79; discussion, 79-80; Chemical Abstracts 49, No. 19, October 10, 1955, Column 13649. An illustrated lecture dealing mainly with the following methods of ink drying: by penetration of the ink vehicle; evapn. of the solvent; oxidation of the filmogen; thermal polymerization; gel formation; "steam-setting," and "cold-setting." The role of the paper during ink drying is outlined and difficulties encountered in drying that are attributable to the paper are discussed.

*PHYSICAL PROPERTIES OF PAPERS FROM SYNTHETIC FIBERS. James K. Hubbard, Franklin H. Koontz, John R. McCartney and Robt. A. A. Hentschel. Chemical Abstracts 49, No. 13, July 10, 1955, Columns 9275-76. Papers have been made from some synthetic fibers (1) such as nylon, Orlon, and Dacron which have outstanding resistance to

degradation by strongly corrosive chemicals, molds, bacteria, sunlight, heat and moisture and also show high strength, flex endurance, and abrasion resistance. Besides their unique properties in terms of fold endurance and strength the papers retain the other desirable properties of I. The methods of bonding and the effect of fiber length on the properties, the dimensional stability to humidity changes, and the strength of sewn seams and heat-sealed joints are discussed. The results show that papers made from I represent valuable products for the paper industry, with properties which cannot be obtained with cellulosic papers.

A NEW REPLICA TECHNIQUE FOR MAKING ELECTRON MICROGRAPHS OF SURFACES. Joseph J. Comer, Harold W. Stetson and S. C. Lyons. TAPPI 38, No. 10, October, 1955, pp. 620-624 (5 pages). A replica technique which makes possible the electron microscope study of uncoated or coated paper sheets is described. The method consists essentially of preshadowing the paper with platinum, backing the platinum with a film of evaporated carbon, and then dissolving the paper and its coating. The application of this technique to kaolinite coated papers substantiated the conclusions of Woodward and Lyons that the gloss developed by coatings utilizing the finer fractions of kaolinite is caused by preferred orientation of the particles parallel to the surface of the coating. Papers coated with titanium dioxide, calcium carbonate and zinc oxide were also examined by this technique and each is shown to have a characteristic structure. The method may also be of value in studying ink receptivity of various coating, and in studying adhesives and sizings at the coating surface.

AN ELECTROSTATIC PROCESS FOR APPLYING DRY COATINGS ON PAPER. R. B. Reif. TAPPI 38, No. 10, October, 1955, pp. 607-609 (3 pages). An electrostatic process has been developed for coating paper with dry coating materials in powder form. The coating material, suspended as a dust cloud in air, is charged electrically and deposited on the web with strong electrostatic fields. The general design and operation of the coating unit, the nature and processing of the coating materials, and the types of coatings made by the process are described. Many different resins and pigments can be applied by this process to provide a wide variety of properties in the coatings.

STUDY OF PAPER COMPOSITION BY PARALLEL SECTIONING. B. L. Browning and I. H. Isenberg. TAPPI 38, No. 10, October, 1955, pp. 602-603 (2 pages). In many technical problems concerned with paper structures and properties, it is desirable to know the distribution of size, filler, and other components through the thickness of the sheet. Similar questions arise in studies of penetration of coatings and tub sizings into the base sheet. For several years, the Institute Laboratories have used a method based on parallel sectioning of the paper followed by analysis of the prepared sections using suitable microtechniques. Typical applications are illustrated in this paper in the belief that they may be of general interest.

*WET STRENGTH PAPER. B. B. Gutman. Bumazh. Prom. 29, No. 3, 12-16 (1954); Chemical Abstracts 49, No. 19, October 10, 1955, Column 13648. The melamine-formaldehyde resins (I) have been found to adhere to the surface of the fibers more firmly than do the urea-formaldehyde resins. The paper treated with I kept wet strength (II) after a prolonged soaking in H_2O and did not suffer a loss in breaking and tearing resistance as did the paper treated with the latter.

LITHOGRAPHY - GENERAL

*MOISTENING MECHANISM FOR OFFSET DUPLICATING MACHINES. U. S. Patent 2,721,515. Veljko Milenkovic. Official Gazette 699, No. 4, October 25, 1955, p. 602. 1. A planographic plate dampening device comprising a moisture form roll mounted for intermittent rolling contact with a plate, a rider roll mounted for normally continuous rolling contact with said moisture form roll, a moisture fountain, a fountain roll having portions in relief spaced about the periphery thereof and being of different lengths measured axially of the roll, means for continuously rotating said fountain roll, a ductor roll mounted for swinging movement between said fountain roll and said rider roll, means for selectively adjusting said fountain roll circumferentially with respect to its drive so that a predetermined selected portion of its periphery is presented to said ductor roll during the cycle, and compound cam means adapted to maintain said ductor roll in rolling contact with said rider roll a fixed period in any one cycle of operation, and to maintain said ductor roll in rolling contact with said fountain roll for a selected period of time during any one cycle of operation so that said ductor roll is in rolling contact with a selected segment of said portions in relief on said fountain roll.

FOR EASIER HANDLING OF OFFSET PLATES. P. R. Russell. American Printer and Lithographer 136, No. 11, November, 1955, pp. 24-25 (2 pages). A storage rack for plates made in the plant of 1" water or conduit pipe is described. Plates are suspended on hooks. Unit handles a wide variety of plate sizes. A specially designed bar with hooks permits one man to remove or hang the largest size plates (42x58). Paper tabs attached to the plates identify them.

*THE DRY OFFSET PROCESS FOR DECORATING MOLDED PLASTICS. Carl R. Johnson. Plastics Tech., Sept. 1955, p. 486; Telescoping the Technical News 21, No. 7, October 31, 1955, p. 102. A high-speed method for applying multiple colors in close register to plastic surfaces of widely varying contours.

GRAPHIC ARTS - GENERAL

KEEPING AN INDUSTRY IN STEP WITH PROGRESS. Dr. Marvin C. Rogers. Photo-Engravers Bulletin 45, No. 4, November, 1955, pp. 141-173 (33 pages). An introductory address by Dr. Marvin C. Rogers followed by a transcript of the panel discussion. The panel included M. H. Bruno of LTF, K. Famulener of Ansco, L. E. Goda, Jr. of Eastman Kodak, Dr. S. W. Levine of Fairchild Graphic Equipment, Inc., and H. E. Swayze of Dow Chemical.

MAKING SILK SCREEN PLATES WITH SENSITIZED SCREENS. Victor Strauss. Inland Printer 136, No. 1, October, 1955, pp. 51, 78 (2 pages). This article describes the technique of making photographic screen printing plates like offset, light-sensitive mixture applied to screen, exposed and developed and transfer methods preferred for most screen process printing jobs.